

WHAT IS CLAIMED IS:

1. A motor of an inner-rotor type driven by a direct-current power supply, comprising:

5 a stator including a stator core with a rotor through hole in a central portion and a plurality of recesses open to the rotor through hole, and a plurality of field magnets which are attached to an inner periphery defining the rotor through hole and generate a magnetic field, each recess facing a magnet end portion of a field magnet and having a recess surface which is away from a surface of the magnet end portion and set back toward an outer periphery of the stator core from a rear surface of the magnet end portion;

15 a motor frame which supports the stator; and a rotor passed through the rotor through hole and rotatably supported by the motor frame.

2. The motor according to claim 1, wherein a side surface of the recess is continued to an edge of the magnet end portion.

3. The motor according to claim 1, wherein the stator core is formed of a stack of a number of core plates and each of the field magnets is formed by injection molding synthetic resin, with which magnetic particles are mixed, to the inner periphery of the stator core.

4. The motor according to claim 1, wherein the

recess extends between magnet end portions of adjacent field magnets; each of the field magnets is formed by injection molding synthetic resin, with which magnetic particles are mixed, to the inner periphery of the stator core; and a thin film recess cover is formed integral with and extends across the magnet end portions of the adjacent field magnets, the recess cover covering an inner surface of the recess.

5        5. The motor according to claim 1, wherein the stator core has grooves, which are continued to the inner periphery and into which projections integrally projected from rear surfaces of the field magnets are inserted.

10       6. The motor according to claim 5, wherein at least three grooves and projections are arranged at regular intervals.

15       7. The motor according to claim 1, wherein the stator core has a substantially rectangular outer shape, and the stator core has grooves, which are continued to the inner periphery and correspond to four corners of the stator core, and into which projections integrally projected from rear surfaces of the field magnets are inserted.

20       8. A motor of an inner-rotor type driven by a direct-current power supply, comprising:

      a stator core formed of a stack of a number of core plates and having a rotor through hole in

a central portion, and a plurality of field magnets which are formed by injection molding synthetic resin, with which magnetic particles are mixed, to an inner periphery defining the rotor through hole and which  
5 generate a magnetic field;

a motor frame which supports the stator; and

a rotor passed through the rotor through hole and rotatably supported by the motor frame.